

## Topological to deep learning era for identifying influencers in online social networks :a systematic review

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Received: 6 December 2022 / Revised: 20 April 2023 / Accepted: 2 June 2023 © The Author(s), under exclusive licence to Springer Science+Business Media, LLC, part of Springer Nature 2023

## Abstract

Influential user detection in social media networks involves identifying users who have a significant impact on the network's dynamics and can shape opinions and behaviours of other users. This paper reviews different topological and deep learning techniques for identifying influencers in online social networks. It examines various methods, such as degree centrality, closeness centrality, betweenness centrality, PageRank, and graph convolutional networks, and compares their strengths and limitations in terms of computational complexity, accuracy, and robustness. The paper aims to provide insights into the state-of-the-art techniques for identifying influencers in online social networks, and to highlight future research directions in this field. The findings of this review paper will be particularly valuable for researchers and practitioners interested in social network analysis.

**Keywords** Prominent user  $\cdot$  Influential nodes  $\cdot$  Online social networks  $\cdot$  Deep learning  $\cdot$  Graph convolution networks(GCNs)  $\cdot$  Communities

## **1** Introduction

Social media is simply a platform for interaction and communication among users in which they generate, part, access and trade data and opinions thereby creating nets (groups) and networks (net of groups, individuals) (Fig. 1) [12]. In the below Fig. 2 a graph is drawn that depicts the statistics of world wide social media users [12].

The top most Social media platforms among all are Pinterest, Facebook, Reddit, Quora, twitter, Instagram, LinkedIn and YouTube. In the Fig. 3 below is drawn a graph that shows the top most social media platforms used worldwide [29].

When people get compound puzzling recommendations, then obviously they seizure towards Influential Users. In general, we can say influential users are those whose impacts

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